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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,771	01/28/2005	Toyoki Fujihara	MAM-058	1751
20374 7590 05/14/2009 KUBOVCIK & KUBOVCIK SUITE 1105 1215 SOUTH CLARK STREET ARLINGTON, VA 22202			EXAMINER LEE, CYNTHIA K	
			ART UNIT 1795	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/522,771	<b>Applicant(s)</b> FUJIHARA ET AL.	
	<b>Examiner</b> CYNTHIA LEE	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 03 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9,12,14-21 and 24-29 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9,14-21 and 24-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

This Office Action is responsive to the amendment filed on 10/27/2008. Claims 2, 10, 11, 22 and 23 have been canceled and claims 24-29 have been added. Claims 1, 3-9, 12, 14-21, and 24-29 are pending. Claim 12 is withdrawn from further consideration as being drawn to a non-elected invention. Applicant's arguments have been considered, but are not persuasive. Claims 1, 3-9, 14-21, and 24-29 are finally rejected for reasons necessitated by applicant's amendment.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-9, 12, 14-21, 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhara (JP 2002-100357) in view of Yamaura (JP 08-213014).

Kazuhara discloses a lithium ion battery comprising a material that stores and releases lithium ion [0024] and positive active material comprising a lithium-nickel-manganese complex having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{Ni}_y\text{Mn}_{1-y-z}\text{M}_z\text{O}_2$  and a lithium-cobalt complex having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{CoO}_2$ . See Abstract. The lithium-nickel-manganese complex consists of a rhombohedron stratified (Applicant's layered structure) rock salt type structure [0017]. In particular, the formula  $\text{LiNi}_{0.5}\text{Mn}_{0.5}\text{O}_2$  is disclosed [0027] (Applicant's claims 6, 7,

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14-17). The mean particle diameter is 4 micrometers [0027] (Applicant's claims 8, 18 and 19). The lithium cobaltate has a mean particle diameter of 7 micrometers [0027] (Applicant's claims 9, 20 and 21). The lithium-nickel-manganese complex was mixed with lithium cobaltate. The mixture was mixed with polyvinylidene fluoride (binder) [0010].

Kazuhara discloses that a flat cell, a wound type cylindrical cell, and button cell, etc are formed [0026]. Absent specific degree of deformation of the outer casing, the Examiner notes that all materials possess some form of deformation and thus, the battery of Kazuhara deforms with an internal pressure of the battery.

Kazuhara discloses a lithium metal complex oxide, but does not disclose having fluorine (Applicant's claims 1, 4, 12). Yamaura teaches of applying fluorination treatment to a lithium transition metal oxide composite. Yamaura teaches that electrolyte decomposition is reduced, decreased in capacity and self discharging caused by the decomposition of the electrolyte is retarded and high reliability is insured. See Abstract. It would have been obvious to one of ordinary skill in the art at the time the invention was made to fluorinate the positive active material of Kazuhara for the benefit of reducing the electrolyte decomposition and insuring high reliability of the battery.

Regarding the limitation "obtained by adding a fluorine compound to raw material used to formulate said lithium transition metal complex oxide", it has been held that "[Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a

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product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113.

Example 4 of the instant Specification states that the raw materials Li and  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  were mixed with LiF to form a fluorinated complex (pg 22-23). It is noted that fluorination is performed on  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$ , and not the individual oxides of the transition metal. The instant Specification does not demonstrate the difference in the structure of the complex between the mixture of the materials Li and  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  of the instant invention and the prior art of the complex. It is the Examiner's position that since mixing the raw material of the Applicant's  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  with fluorine is close to mixing the final product  $\text{LiMn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$ , it appears that the fluorinated transition metal oxide structure of the prior art is similar to the Applicant's. Therefore, claims are met by Kazuharain view of Yamaura. However, if the claims are not anticipated, the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious. *In re Brown* 173 USPQ 685 and *In re Fessman* 180 USPQ 324. See MPEP 2113.

Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence

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establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Regarding 24, 26, and 28, it has been considered but was not given patentable weight because the courts have held that the method of forming the product is not germane to the issue of patentability of the product itself. “[Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process.” *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Therefore, the claims are met by Kazuharain view of Yamaura. However, if the claims are not anticipated, the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious. *In re Brown* 173 USPQ 685 and *In re Fessman* 180 USPQ 324. See MPEP 2113.

Regarding claims 25, 27, and 29, Yamaura teaches that the fluorination process saves the battery from hot environments or charge and discharge are performed with high charge voltages, and self-discharge is suppressed while high capacity is maintained [0030], thus clearly teaching that the fluorine compound is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not

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novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). MPEP 2144.05

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhara (JP 2002-100357) in view of Yamaura (JP 08-213014) as applied to claim 1, further in view of Goto (US 6444351).

Kazuhara modified by Yamaura teaches all the elements of claim 1 and are incorporated herein. Kazuhara modified by Yamaura does not teach an aluminum outer casing with a thickness of 0.5 mm (or 500 um) or below. Goto teaches of a wound battery casing with a laminated nylon and aluminum layer having a thickness of 40 um (9:63-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of Kazuhara modified by Yamaura with the casing as taught by Goto for the benefit of protecting the inside components of the battery.

Claims 1, 4-9, 12, 14-21, 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhara (JP 2002-100357) in view of Nishida (EP 1246279).

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Kazuhara discloses a lithium ion battery comprising a material that stores and releases lithium ion [0024] and positive active material comprising a lithium-nickel-manganese complex having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{Ni}_y\text{Mn}_{1-y-z}\text{M}_z\text{O}_2$  and a lithium-cobalt complex having a R-3m rhombohedral structure expressed by  $\text{Li}_x\text{CoO}_2$ . See Abstract. The lithium-nickel-manganese complex consists of a rhombohedron stratified (Applicant's layered structure) rock salt type structure [0017]. In particular, the formula  $\text{LiNi}_{0.5}\text{Mn}_{0.5}\text{O}_2$  is disclosed [0027] (Applicant's claims 6, 7, 14-17). The mean particle diameter is 4 micrometers [0027] (Applicant's claims 8, 18 and 19). The lithium cobaltate has a mean particle diameter of 7 micrometers [0027] (Applicant's claims 9, 20 and 21). The lithium-nickel-manganese complex was mixed with lithium cobaltate. The mixture was mixed with polyvinylidene fluoride (binder) [0010].

Kazuhara discloses that a flat cell, a wound type cylindrical cell, and button cell, etc are formed [0026]. Absent specific degree of deformation of the outer casing, the Examiner notes that all materials possess some form of deformation and thus, the battery of Kazuhara deforms with an internal pressure of the battery.

Kazuhara discloses a lithium metal complex oxide, but does not disclose having fluorine (Applicant's claims 1, 4, 12). Nishida teaches of applying fluorination treatment to a lithium transition metal oxide composite. Nishida teaches of fluorinating the raw materials of the metal complex [0021] (Applicant's claim 1).  $\text{LiF}$  is used as the fluorine compound (Applicant's claims 24, 26, and 28). Yamaura teaches that by fluorinating the lithium transition metal complex, a high temperature cycle property can be



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enhanced. See Abstract and [0011]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to fluorinate the positive active material of Kazuhara for the benefit of enhancing the cycle property of the battery.

It has been held that “[Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from the product of prior art, the claim is unpatentable even though the prior product was made by a different process.”

*In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). See MPEP 2113. Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Regarding claims 25, 27, and 29, Nishida teaches that the fluorination process stabilizes the synthesis so that the decomposed gas of the electrolyte is decreased[0011], thus clearly teaching that the fluorine compound is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. Generally, differences in concentration or temperature will not support the patentability

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of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). MPEP 2144.05

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuhara (JP 2002-100357) in view of Nishida (EP 1246279) as applied to claim 1, further in view of Goto (US 6444351).

Kazuhara modified by Nishida teaches all the elements of claim 1 and are incorporated herein. Kazuhara modified by Nishida does not teach an aluminum outer casing with a thickness of 0.5 mm (or 500 um) or below. Goto teaches of a wound battery casing with a laminated nylon and aluminum layer having a thickness of 40 um (9:63-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the battery of Kazuhara modified by Nishida with the casing as taught by Goto for the benefit of protecting the inside components of the battery.

### ***Response to Arguments***

Applicant's arguments filed 10/27/2008 have been fully considered but they are not persuasive.

Applicant argues that in the instant invention, the fluorine is added to the raw materials of the metal oxide and thus the fluorine exist inside the complex, whereas in

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Yamaura, the fluorination takes place after the synthesis of the complex, and thus, the fluorine is located on the surface of the complex.

The Examiner remains unpersuaded. The arguments amount to a general allegation that the claims define a patentable invention without providing evidence that the instant invention distinguishes from Yamaura's process. Applicant's allegation that the fluorine exist inside the complex in the instant invention is without factual support.

Example 4 of the instant Specification states that the raw materials Li and  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  were mixed with LiF to form a fluorinated complex (pg 22-23). It is noted that fluorination is performed on  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$ , and not the individual oxides of the transition metal. The instant Specification does not demonstrate the difference in the structure of the complex between the mixture of the materials Li and  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  of the instant invention and the prior art of the complex. It is the Examiner's position that since mixing the raw material of the Applicant's  $\text{Mn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$  with fluorine is close to mixing the final product  $\text{LiMn}_{0.33}\text{Ni}_{0.33}\text{Co}_{0.34}(\text{OH})_2$ , it appears that the fluorinated transition metal oxide structure of the prior art is similar to the Applicant's. Therefore, claims are met by Kazuhara's view of Yamaura. However, if the claims are not anticipated, the claims are obvious as it has been held similar products claimed in product-by-process limitations are obvious. In re Brown 173 USPQ 685 and In re Fessman 180 USPQ 324. See MPEP 2113.

Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a

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different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/  
Examiner, Art Unit 1795

/PATRICK RYAN/  
Supervisory Patent Examiner, Art  
Unit 1795